



## GROUND TRANSPORTATION ACCIDENTS AND ALCOHOL ABUSE IN VICTIMS ATTENDED AT A TEACHING HOSPITAL LOCATED IN THE SOUTHERN REGION OF THE CITY OF SÃO PAULO

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### ABSTRACT

**Introduction:** The increase of care to victims of road accidents (ATT) is currently deemed as a public health problem due to high mortality, morbidity, and hospital costs.

**Objective:** To describe the traffic accidents occurred due to alcohol abuse, whose victims were treated at a Teaching Hospital, located in the southern region of the city of São Paulo.

**Method:** This was an individualized and descriptive observational study involving cases of traffic accidents due to alcohol abuse, which were treated at a teaching hospital in the southern region of the city of São Paulo. A total of 92 Notification Forms of Suspected or Confirmed Cases of Violence and Injuries (SIVVA) were analyzed between the years 2008-2013, in the Medical Service and Statistics (Same) at that hospital.

**Results:** The main association between alcohol abuse and traffic accidents, according to the vehicle type was higher among occupants / motorcycle drivers (44.6 %), followed by cars (34.8 %). Regarding gender of victims: 90.2 % male and 9.8 % female. Discussion: The problem of driving vehicles under the influence of legal drugs (like alcohol) has arisen much interest in the scientific community. It is known that alcohol has a significant participation in the occurrence of accidents, often with fatalities.

**Conclusion:** This study highlights the relevance of the transportation accidents, especially by the predominance in the young people and the economically active male population.

**KEY WORDS:** Accidents, Traffic; Accident Prevention; Alcoholic Intoxication.

### Introduction

The increase of care to victims of road accidents (ATT) is currently deemed as a public health problem due to the high mortality, morbidity, hospital costs, life years potentially lost and social impact.<sup>1,2</sup>

In Brazil, the concept adopted is that ground transportation accidents occur not intentionally, however subject to be prevented. This concept is important not only to translate the non-randomization of the events but also the possibility to identify the aspects to condition and determine the proper intervention and prevention measures.<sup>3</sup>

The literature describes the factors associated with the ground transportation accidents, such as the progressive increase in the vehicle fleet, the sometimes urban disordered growth, low tradition in traffic education, risky behaviors, disrespect to the traffic legislation associated with the occasional impunity, failures in the legislation, bad conditions of the traffic routes, lack of vehicle maintenance, unfavorable climatic conditions and alcohol abuse, among others.<sup>3,4</sup>

As regards the ground transportation accidents, most of the burden of all the consequences of such events should impact on health: increase in demand for pre-hospital and hospital assistance, rehabilitation and the disabilities arisen, the life years potentially lost and the impact on the victims' families and on the society in general. These issues have led national and international institutions to recognize the overload represented by these events on the health system and the significant social and economic cost they represent.<sup>5</sup>

Presently, in Brazil, several studies have taken place about the alcohol abuse and its consequences. The use of this psychotropic substance is been measured in this country by several indicators that had identified it as the main cause of traffic accidents. However, there are still few domestic studies to evaluate the correlation of this abuse with fatal and non-fatal accidents, although there are indications of the importance of this association.<sup>6,7</sup>

When comparing the relevance of the impact of the alcohol abuse on the traffic accidents in Brazil, it is worth to mention the significant under notification leading to an underestimated amount of cases, as compared to other countries.<sup>7</sup>

It is necessary to recognize that data on hospital mortality and morbidity are limited to the characterization of the epidemiologic profile of the ground transportation accidents, as, most of the times, those victims not requiring hospital assistance and that do not represent fatal cases are not recorded. Sometimes, the victim's characterization is not complete and does not allow the association with important risk factors, such as the alcohol abuse. The lack of data, or incorrect information on the victim's registration form does not mention the place of the occurrence, thus turning it difficult to take preventive measures.<sup>8</sup>

The introduction of the "Sistema de Informação para a Vigilância de Violências e Acidentes/SIVVA" [Information System for Surveillance of Violence and Accidents] in the municipal health net allows the production of information for the diagnostic, planning, monitoring and evaluation of actions to face up with these accidents. Furthermore, it also aims at complying with the federal, state and municipal legislations that rule the reporting of suspected or confirmed accidents attended by the health services.<sup>8</sup>

The present study aimed at describing the traffic accidents due to alcohol abuse and whose victims were assisted at a Teaching Hospital situated at the Southern region of the city of São Paulo.

### Method:

This was an individualized and descriptive observational study involving cases of traffic accidents due to alcohol abuse and assisted at a teaching hospital located in the southern region of the city of São Paulo, State of São Paulo, Brazil.

The Notification Records of Suspected or Confirmed Cases of Violence and Accidents (SIVVA) collected during the period 2008 through 2013 in the Medical Service and Statistics (Same) of that hospital were analyzed regarding patients who had been reported as victims of ground transportation accidents, according to the Disease International Classification (Classificação Internacional das Doenças [CID-10]) encoded as V01-V99.

The study involved the analysis of 92 records and the inclusion criteria were: alcohol abuse by the victim and the reporting of the accidents attended. The subjects who did not present the criteria aforementioned were excluded from the survey.

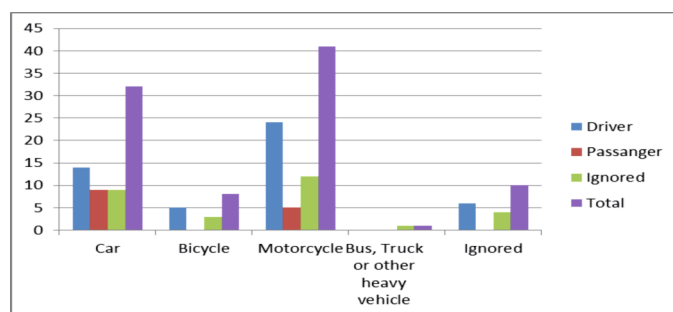
The alcohol abuse is recorded in the notification report through the suspicion or evidence that the patient abused alcohol prior to the event that caused the injury.

The selected variables for the study were: age, pedestrian or OCUPANTE, driver or passenger, vehicle model, type of the collision object (another vehicle, pedestrian, fixed object such as a post or wall), time of the occurrence and the injury diagnosis presented by the patients.

The research complies with the Resolution 466/12 of the National Commission on Ethics in Research (CONEP)/National Council of Social Service (CNS)/Ministry of Health (MS); as regards the ethical aspects of the survey, it has been submitted to the Committee on Ethics and Research of the Hospital Geral do Grajaú and approved as per opinion number 006/2013, dated June 26th, 2013 (CAAE: 18953113.1.0000.5447), with exemption of the Free and Informed Consent Term (TCLE) as the survey refers to the analysis of data from the notification reports.

### Results:

In the period from 2008 through 2013, a total of 92 cases of alcohol abuse and ground transportation accidents were reported at the Teaching Hospital, to read: 53.3% drivers, 15.2% passengers and 31.5% ignored. In this same period, a total of 2,244 cases of ground transportation accidents were reported in this hospital, out of which 4.1% corresponded to alcohol abuse.



**Figure1. Notification per driver/passenger, according to the victim's vehicle model, attended at the Teaching Hospital per ground transportation accident and alcohol abuse, 2008 through 2013.**

The major association between alcohol abuse and transportation accidents according to the vehicle model was higher among the motorcycle drivers/passenger (44.6%) followed by car accidents (34.8%).

As regards victims' gender: 90.2% were male and 9.8% were female. Among male victims, 55.4% were the drivers. As regards age: youngsters (50.0%) averaging between 20 and 29 years old.

Regarding the object of collision: 38.9% of the accidents happened in collision to another vehicle, 22.8% collided with fixed objects (wall, post) and 4.3% were involved in running over pedestrian cases.

Most of the ground transportation accidents took place during the night, corresponding to 42.4% of the notifications.

It is worth to mention that among the notification of transportation accidents and alcohol abuse 1.1% of the victims have used other illegal drugs.

As regards injuries to the body experienced by the victims in ground transportation accidents, we had: 45.7% to upper extremities, 33.7% to multiple body parts, and 12.0% to lower extremities. The most frequent diagnoses were: Superficial Head Trauma, Non Specified Multiple Superficial Trauma and Superficial Trauma to the Lower Extremity, non-specified level.

As regards the progress of the cases, 77.2% were dismissed from hospital and 10.9% remained to be observed.

### Discussion:

The behavior associating alcohol abuse and drive, the drivers' characteristics and the risk of accidents is subject of study in several countries. The relevance of the relationship between alcohol and drive as regards public health led the developed countries to successfully adopt measures to reduce mortality and morbidity due to traffic accidents.<sup>9</sup> Therefore, as in Brazil, the reformulation of the Brazilian Traffic Code resulted in the issuing of the so called Dry Law number 12.760/12, defined with the new Resolution number 432, that does not allow any amount of alcohol in the driver's blood, in compliance with Article 165 of the Brazilian Traffic Code.

The consequences of the accidents to the health system and to the society point out the need to improve the information systems for external causes, aiming at subsidize public policies to prevent the progress, general care to the victims and health promotion.<sup>10</sup>

In the present study in the analyzed period, 92 cases involving transportation accidents and alcohol abuse were reported, corresponding to 4.1% of said accidents attended at the Teaching Hospital. This scenario yields how far our statistical data do not show the reality, thus leading to a sub-notification of the real number of traffic accidents caused by alcohol abuse.<sup>11</sup> The notification of accidents by SIVVA in the city of São Paulo started in 2008; the filling out of the variable regarding alcohol abuse is made by the health professional who is attending the victim; no blood test is made to check the amount of alcohol in the victim's blood nor the breathalyzer test is performed.

The Teaching Hospital is located in the Southern region of the city of São Paulo, at the Grajaú region, the post crowded area in the city. It has the most population annual growth rate in the city and most of the population is comprised of children, teenagers and young adults up to 29 years old.<sup>12</sup> The study performed has shown that the traffic accidents associated with alcohol abuse, per age reference, occurred most among young adults, male and ranging from 20 to 29 years old.

In the present investigation it was noted that the victims have shown demographic features similar to those noted in the studies dealing with injured people from traffic accidents. It was noted a clear predominance of young and male adults, a group regarded as a risk group due to the drivers' lack of experience in the traffic and recently granted with a driver's license.<sup>13,14</sup>

Among the notifications of transportation accidents and alcohol abuse, 1.1% of the victims had also used other illegal substances. A study carried out by the Instituto Sou da Paz (2006) at the region showed that, according to local residents, drugs and traffic are some of the major problems in that area.<sup>12</sup>

The scientific community is very focused on the problem of driving under the effect of legal and illegal drugs. It is known that legal substances (such as alcohol) and illegal drugs have a significant participation in the occurrence of traffic accidents, usually involving fatalities.<sup>15,16</sup>

The accidents occurred mostly during the night; however, the study did not investigate what the victims were doing at that time. It is suggested that, as the population involved was of young adults, there was alcohol abuse and the accidents occurred during the night, it seemed to be associated with parties, entertainment etc.

As regards the type of vehicle involved, the main association between alcohol abuse and transportation accidents was noted among the motorcycle drivers/passengers, followed by the cars.

The increasing search for vehicles for faster transportation has led to increase the number of motorcycles on the streets, either to ease transportation or to low costs and maintenance. Today, the motorcycles represent a risk factor to sustain the high rates of transportation accidents.<sup>17,18</sup>

As per Sado and cols<sup>19</sup>, for motorcycle drivers, the body part most protected by the protection equipment during the impact is the head (by the use of the helmet), the upper and lower extremities being the most susceptible and seriously injured. This study is coherent with the other ones regarding motorcycle as the main type of vehicle involving young victims, male, and the body parts most injured being the upper limbs, multiple body parts and the lower limbs.

The most frequent type of accident was the collision with cars; this study agrees with the literature.<sup>20,21</sup> In 2011, the Companhia de Engenharia de Trânsito (CET) of the city of São Paulo studied the ground transportation fatal accidents in the city and involving motorcycles and found out that the most frequent cause leading to accidents was to drive within the "corridor", that is, on the small space between two contiguous lines of cars. In this survey, it was found out that the main type of accident was the one involving motorcycles and another car as the object of collision.<sup>22</sup>

Most of the cases resulted in dismissal from hospital; the present study was not able to identify whether dismissal was immediate, without the need to admission, or if the hospital dismissal recorded on the notification report was filed out on the day of the dismissal. The compulsory notification of the accidents is the only way to get a single and reliable databank. This system could gather information from both the public safety organs and medical care facilities to allow an analysis per local of the occurrences, and per conclusion (Ward dismissal, dismissal following admission, death at the place of the accident, death during medical care, among others).<sup>23,24</sup>

### Conclusion

It is highlighted the relevance of the ground transportation accidents, particularly due to their predominance among the young and male population, regarded as economically active. Based on the results, it is recommended to use the notification of transport accidents as a means to subsidize the epidemiologic analysis of violence in the traffic, the alcohol abuse as well as to subsidize public policies aiming at preventing and minimizing these damages.

**Conflict of interest:** "The authors declare the non-existence of any conflict of interest in the performance of this job".

**Declaration of responsibility**

I certify that I was involved authored the manuscript to take public responsibility for the content.

I certify that the manuscript represents original work and that neither this manuscript, in part or in full, or any other work with substantially similar content of my authorship has been published or is being considered for publication elsewhere, either in printed format or electronic.

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